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10/587,169

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Hajime Suzuki

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Dickinson Wright PLLC

James E. Ledbetter, Esq.

International Square

1875 Eye Street, NW., Suite 1200

WASHINGTON, DC 20006

EXAMINER

NOTE, JANIS L

ART UNIT

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1795

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/587,169 | Applicant(s) SUZUKI ET AL. | |
| | Examiner Janis L. Dote | Art Unit 1795 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,9,11,14-16,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,9,11,14-16,19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The examiner acknowledges the cancellation of claims 3, 5-8, 10, 12, 13, 17, and 18, the amendments to claims 1, 9, 11, and 14-16, and the addition of claims 10 and 20 filed on Sep. 29, 2008. Claims 1, 4, 9, 11, 14-16, 19, and 20 are pending.

The examiner further acknowledges the abstract filed on Sep. 29, 2008.

2. The examiner notes that the originally filed specification in paragraph 0025 provides antecedent basis for the undercoat layer thickness range of 5.0 to 50 μm recited in instant claim 1.

3. The rejections of claims 1-14, 17, and 18 under 35 U.S.C. 112, second paragraph, set forth in the office action mailed on May 28, 2008, paragraph 5, have been withdrawn in response to the amendments to claim 1, 9, 11, and 14 and the cancellation of claims 7, 8, 10, 12, 13, 17, and 18 filed on Sep. 29, 2008.

The rejection of claims 1 and 3-18 under 35 U.S.C. 102(a)/103(a) over Japanese Patent 2004-118161 (JP'161), set forth in the office action mailed on May 28, 2008, paragraph 9, has been withdrawn because of applicants' filing of an English-language translation of the priority document

Japanese Application Number 2004-022753 on Sep. 29, 2008, which Mr. James E. Ledbetter (Reg. No. 28,732) states is "an accurate English translation of the original Japanese Application JP 2004-022753, filed January 30, 2004 to which this application claims priority." See the response filed on Sep. 29, 2008, page 8, first full paragraph. Applicants have perfected their claim to foreign priority under 35 U.S.C. 119 for the subject matter recited in instant claims 1, 4, 9, 11, 14-16, 19, and 20. The English-language translation of the priority document Japanese Patent Application 2004-022753 filed on Sep. 29, 2008, provides antecedent basis as set forth under 35 U.S.C. 112, first paragraph, for the subject matter recited in instant claims 1, 4, 9, 11, 14-16, 19, and 20. Accordingly, JP'161 is no longer prior art with respect to the subject matter recited instant claims 1, 4, 9, 11, 14-16, 19, and 20.

The rejection of claims 6, 12, and 18 under 35 U.S.C. 103(a) over US 2004/0033428 A1 (Niimi'428) combined with the other cited references, set forth in the office action mailed on May 28, 2008, paragraph 11, has been mooted by the cancellation of claims 6, 12, and 18 filed on Sep. 29, 2008.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 4, 9, 11, 14-16, 19, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 is indefinite in the phrase "the undercoat layer comprises titanium oxide, and the weight ratio of the polyimide resin and the titanium oxide is in the range of 3:1 to 1:4" because it is not clear what layer in the two-layer structure of the undercoat layer, e.g., the polyimide-containing layer, the thermosetting or thermoplastic resin layer, or both layers, comprises the titanium oxide.

Claims 9, 14-16, 19, and 20 are indefinite in the phrase "[t]he electrophotographic apparatus of claim 1" for lack of unambiguous antecedent basis in claim 1, from which claims 9, 14-16, 19 and 20 depend. Claim 1 drawn to an electrophotographic photoreceptor, which is usually a component of an electrophotographic apparatus, not an electrophotographic apparatus. It is not clear how a photoreceptor is an electrophotographic apparatus that can further include the components recited in the instant claims.

Claim 11 is further indefinite in the phrase "[t]he electrophotographic apparatus of claim 4" for lack of unambiguous antecedent basis in claim 4, from which claim 11 depends. Claim 4 drawn to an electrophotographic photoreceptor, which is usually a component of an electrophotographic apparatus, not an electrophotographic apparatus. It is not clear how a photoreceptor is an electrophotographic apparatus that can further include the components recited in the instant claim.

Claims 15 and 16 are further indefinite in the phrase "said exposing means uses a semiconductor laser" (emphasis added) because it is not clear how a device, i.e., the exposing means, uses another device, i.e., the semiconductor laser.

Claim 19 is further indefinite in the phrase "further including at least one of a corona charging system, a charging roller and a charging brush" (emphasis added) because it is not clear whether the claim requires that all three of the named components be present in the apparatus or just one. In colloquial informal English, the phrase "is one of A . . . and Z" can be read as being met by any one of A . . . and Z. More formally, if only one element is required, one might write "is one of A . . . or Z." Or if all elements were required, one might write "is one each of A . . . and Z." Clarification,

supported by specific disclosure in the originally filed specification, is required.

Claim 20 is further indefinite in the phrase "further including at least one of a charging roller and a charging brush" (emphasis added) because it is not clear whether the claim requires that both of the named components be present in the apparatus or just one for the reasons discussed with respect to claim 19. Clarification, supported by specific disclosure in the originally filed specification, is required.

Applicants' arguments filed on Sep. 29, 2008, as applicable to the rejections of claims 15 and 16 regarding the phrase "exposing means uses" have been fully considered but they are not persuasive.

Applicants assert that the amendments to claims 15 and 16 overcomes the rejection. However, replacing the word "using" with -- uses -- in the amendments to claims 15 and 16 does not overcome the rejection for the reasons discussed above. Accordingly, the rejection of claims 15 and 16 stand.

6. Claim 1 is objected to because of the following informalities:

In claim 1, the article "a" in the phrase "a layer comprising a polyimide resin" (emphasis added) is objected to

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for lack of antecedent basis for "a polyimide resin." The article should be changed to the article -- the -- such that claim 1 recites that the undercoat layer comprises a layer containing the polyimide resin presented by formula [1], which claim 1 previously recites the undercoat layer contains.

Appropriate correction is required.

7. In the interest of compact prosecution, the examiner has interpreted the claim language in instant claims 19 and 20 as requiring only one of the named components recited in those claims. Rejections based on this interpretation are set forth infra.

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 1, 4, 9, 11, 14-16, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0033428 A1 (Niimi'428), as evidenced by Kirk-Othmer, Encyclopedia of Chemical Technology, fourth edition, Vol. 15, page 21, lines 12-19 (Kirk-Othmer) and the ACS File Registry RN 26201-32-1, combined with Japanese Patent 2002-229236

(JP'236). See the USPTO English-language translation of JP'236 for cites.

Niimi'428 exemplifies a photoreceptor comprising an aluminum cylinder as the conductive substrate, an undercoat layer having a thickness of 3.5 μm , and a photosensitive layer comprising a charge generation layer and a charge transport layer. Example 8 in paragraphs 0208 to 0212. Niimi'428 further teaches an electrophotographic imaging apparatus comprising a contact charging roller, an exposure device comprising a laser diode having a wavelength of 780 nm, and its photoreceptor. See Fig. 3 and paragraph 0224. It is well known in the art of lasers that a semiconductor laser is also called a "diode laser," i.e., a laser diode. See Kirk-Othmer, p. 21, lines 12-19. The contact charging roller and exposure device meet the contact charging means and charging roller recited in instant claims 9, 11, 19 and 20, and the exposure means recited in instant claims 14-16, respectively.

In example 8, the charge generation layer comprises a particular titanyl phthalocyanine pigment that exhibits a $\text{CuK}\alpha$ X-ray diffraction pattern having a main diffraction peak at a Bragg angle ($2\theta \pm 0.2^\circ$) of 27.3° , which meets the oxytitanium phthalocyanine limitation recited in instant claim 1.

Paragraph 0019; example 1, titanylphthalocyanine pigment 1, in

paragraph 0186 and in example 4 in paragraph 0194; and Fig. 9. Niimi'428 does not identify its titanylphthalocyanine pigment as "oxytitanium phthalocyanine" as recited in instant claim 1. However, as evidenced by the ACS File Registry RN 26201-32-1, it is well known that titanyl phthalocyanine is also identified as oxotitanium phthalocyanine.

Niimi'428 does not exemplify a photoreceptor comprising the undercoating layer as recited in the instant claims. However, Niimi'428 does not limit the composition of the undercoat layer or its thickness. See paragraphs 0116 to 0118. In paragraph 0118, Niimi'428 teaches that the thickness of the undercoat layer is "preferably 0 to 5 μm ." The upper limit, 5 μm , of the Niimi'428 preferred undercoat layer thickness range is within the undercoat layer thickness range of 5.0 to 50 μm recited in instant claim 1.

JP'236 teaches an undercoat layer comprising a layer comprising a polyimide precursor resin and a polyimide resin that is within the compositional limitation recited in instant claim 1. See the USPTO translation, paragraphs 0006-0010, and for example, example 1 in paragraph 0045, and example 5 in paragraph 0052. In JP'236 example 1, JP'236 exemplifies an undercoat layer comprising the polyimide precursor resin with R_1 of formula R_1-1 and the polyimide resin with R_2 of formula R_2-1 .

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The undercoat layer has a thickness of 1.0 μm . Translation, paragraphs 0010 and 0045. The polyimide resin with R_2 of formula R_2-1 is within the polyimide resin compositional limitations recited in instant claim 1. JP'236 also teaches that the layer comprising the polyimide precursor resin and the polyimide resin may have a thickness of 0.01 to 20 μm , preferably of 0.1 to 10 μm . Translation, paragraph 0019.

JP'236 further teaches that the undercoat layer comprising the layer comprising the polyimide precursor resin and the polyimide resin may be coated with another layer comprising a thermoplastic or a thermosetting resin, such as a melamine alkyd resin. Translation, paragraphs 0013, 0022, and 0025 and for example, example 5 in paragraph 0052. According to JP'236, said two-layered undercoat layer suppresses the "accumulation of residual potential" and improves the "image quality" even when a thick undercoating layer is formed. Paragraphs 0013 and 0022. In example 5, JP'236 exemplifies an undercoat layer comprising the layer of JP'236 example 1 comprising the polyimide precursor resin with R_1 of formula R_1-1 and the polyimide resin with R_2 of formula R_2-1 laminated with a layer comprising a thermosetting melamine/alkyd resin. The two-layered undercoat layer meets the two-layer undercoat layer structure recited in instant claim 1. In example 5, JP'236 does not disclose the thickness of the

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layer comprising the thermosetting resin. However, JP'236 teaches that the layer comprising the thermosetting or thermoplastic resin should have a thickness of 0.1 to 10 μm , preferably of 0.8 to 5 μm . Translation, paragraph 0025.

When the layer comprising the thermosetting resin in example 5 of JP'236, is adjusted to the preferred upper thickness value of 5 μm , the total thickness of the undercoat layer would be 6 μm , which is within the range the thickness range of 5.0 to 50 μm recited in instant claim 1.

JP'236 also teaches that the layer comprising the polyamide resin and the polyimide resin may further comprise titanium oxide particles. According to JP'236, the titanium oxide particles may be present in the amount of 1 to 4 times the amount of the polyimide precursor resin and the polyimide resin. Translation, paragraph 0024. In example 5 of JP'236, the first undercoat layer comprises 6 parts by weight of the polyimide precursor resin with R_1 of formula R_1-1 and 4 parts by weight of the polyimide resin with R_2 of formula R_2-1 . Translation, paragraphs 0045 and 0052. When titanium oxide particles are added in an amount of 10 parts by weight to the first undercoat layer of example 1 of JP'236, i.e., 1 times the amount of the polyimide precursor and polyimide resins, the weight ratio of the polyimide resin to the titanium oxide particles would

be 0.4, which is within the weight ratio of polyimide resin to titanium oxide particles of 3:1 to 1:4 recited in instant claim 4. According to JP'236, when titanium oxide particles are added to the undercoat layer, the undercoat layer's dielectric constant increases and a thicker undercoat layer can be used and dispersibility improves. Translation, paragraph 0012.

According to JP'236, when a photoreceptor comprises the JP'236 undercoat layer between the conductive substrate and the photosensitive layer of the photoreceptor, the conductive substrate defects are covered without degrading the electrophotographic properties of the photoreceptor. The photoreceptor has excellent stability of electrophotographic characteristics when repeatedly used and in environmental characteristics. Translation, paragraphs 0005 and 0068, and examples 1 and 5 in Table 2.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in JP'236, to adjust, through routine experimentation, the thickness of the upper layer comprising the thermosetting resin in the two-layered undercoat layer comprising the layer comprising the polyimide precursor with R_1 of formula R_1-1 and polyimide resin with R_2 of formula R_2-1 laminated with the upper layer comprising the thermosetting resin, exemplified in example 5 of JP'236, such

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that the undercoat layer has a total thickness as recited in instant claim 1, e.g., 5 or 6 μm . It would also have been obvious for that person to further include titanium oxide particles in the layer comprising the polyimide precursor resin and polyimide resin in an amount within range recited in instant claim 4, e.g., a weight ratio of polyimide resin to titanium oxide particles of 4 to 10, as taught by JP'236. It would have further been obvious to that person to use the resultant two-layered undercoat layer having a total thickness as recited in instant claim 1 with or without the titanium oxide particles in the layer comprising the polyimide precursor resin and polyimide resin as the undercoat layer in the photoreceptor disclosed by Niimi'428 and to use the resultant photoreceptor in the electrophotographic imaging apparatus disclosed by Niimi'428. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor and an imaging apparatus comprising said photoreceptor that have excellent stability in electrophotographic properties when used repeatedly and in environmental characteristics as disclosed by JP'238.

Applicants' arguments filed on Sep. 29, 2008, have been fully considered but they are not persuasive.

Applicants assert that Niimi'428 only discloses an

undercoat layer having a thickness of 3.5 μm . Applicants also assert that Niimi'428 does not disclose or suggest a two-layer structured undercoat layer comprising a polyimide layer and having a thickness of 5.0 to 50 μm , as recited in instant claim 1. Applicants further assert that JP'236 does not teach or suggest a charge generation layer comprising an oxytitanium phthalocyanine pigment as recited in instant claim 1. Applicants assert that nothing in the references would have motivated one of ordinary skill in the art to combine the references.

Applicants' assertions are not persuasive for the following reasons:

(1) As discussed in rejection above, the combined teachings of Niimi'428 and JP'238 render obvious a photoreceptor and an apparatus that meets all the limitations recited in the instant claims. Applicants cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

(2) Furthermore, as discussed in the above rejection, Niimi'428 is not limited to the undercoat layer shown in example 8 of Niimi'428. Nor does Niimi'428 limit the

composition or the thickness of the undercoat layer. See the above rejection, page 9, the first full paragraph. The disclosure of a reference is not limited to its examples or to its preferred embodiments. Rather, a reference is relevant for all that it teaches. In re Heck, 216 USPQ 1038, 1039 (Fed. Cir. 1983). "[I]n a section 103 inquiry, 'the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.'" Merck & Co. Inc. v. Biocraft Laboratories Inc., 10 USPQ2d 1843, 1846 (Fed. Cir. 1989) (quoting In re Lamberti, 192 USPQ 278, 280 (CCPA 1976)).

(3) Contrary to applicants' statement that Niimi'428 does not disclose "a charge [sic] layer as claimed in Claim 1," Niimi'428 teaches a photoreceptor comprising a photosensitive layer comprising a charge generation layer that comprises an oxytitanium phthalocyanine as recited in instant claim 1.

(4) Moreover, as discussed in the above rejection, JP'238 provides reason, suggestion, and motivation to a person having ordinary skill in the art to use its two-layered undercoat layer as the undercoat layer in the photoreceptor disclosed by Niimi'428.

Accordingly, for the reasons discussed in the above rejection, the instantly claimed invention is rendered prima

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facie obvious over the combined teachings in the prior art. The rejection of instant claims 1, 4, 9, 11, 14-16, 19, and 20 stand.

10. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Sandra Sewell, whose telephone number is (571) 272-1047.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Janis L. Dote/
Primary Examiner, Art Unit 1795

JLD
Dec. 30, 2008